REMARKS/ARGUMENTS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments, and the following remarks. Claims 1-4 are in the application.

The Examiner has rejected claims 1-4 under 35 USC 103 as being unpatentable over Mishima in view of Sugiura and Gabriel and Matsuoka and Kruse. Applicant respectfully traverses.

The Examiner states that the preamble of claim 1 can be derived from Mishima, and then states that Sugiura shows in Fig. 3 a recess 180 according to Fig. 3 formed into the radially outer region of the piston crown 164.

However, in Fig. 3, reference numeral 164 refers to a closure element (closing member, see column 11, line 29). No recess 180 is formed into this closure element.

The Examiner states that it would be obvious from Sugiura to form a circumferential recess according to the present invention into the piston of Mishima, close to the piston crown, radially

on the outside. However, in Fig. 3 of the Sugiura, a blank for the production of two pistons for a swash plate compressor is shown, and a cylindrical recess 180 is formed into each of the two piston blanks, radially from the outside. In this connection, recess 180 is closed off by closure element 164, within the framework of production of the pistons. However, this cylindrical recess 180 has little similarity with the circumferential recess according to the present invention, because the recess of the present invention accommodates a ring element, and is not, as in the case of Sugiura, maintained as a cavity. It is therefore difficult to imagine that a person of average skill in the art could get an inspiration from Sugiura for forming a circumferential recess into the region of the crown of the piston of Mishima, radially on the outside.

Furthermore, the Examiner states that Gabriel shows a torus-shaped cooling channel with a free shank that has a C shape and is open radially to the outside. Gabriel describes a cooling channel cover, which has an approximately C shape in section, and which is open downward, on a side that faces away from a cooling channel, which channel is covered by the cover. The recess that this C shape brings with it has nothing at all to do with the

creation of a cooling channel in Gabriel.

Furthermore, the Examiner states that Matsuoka gives indications for welding a ring insert from Niresist, the surface of which insert lies radially on the inside, for providing this ring insert with a cooling channel and casting it into the ring element made of aluminum, whereby the ring element is then given such a shape that it fits into the recess.

Here it should be pointed out that Matsuoka, in column 19, line 35 and 36, describes welding together combustion chamber insert 3 and connection element 39, as they are shown in Figures 11 and 12. According to column 19, line 30 to 35, it is true that there is another connection element 50 of Niresist between connection element 39 and the piston material. However, this connection element 50 is not welded together either with the piston material or with the connection element 39.

Furthermore, elements 3, 39, and 50 form a combustion chamber in the crown of a piston, and not a cooling channel. It is therefore difficult to imagine that Matsuoka could give a person of skill in the art any inspiration to weld a piston ring

insert together with a cooling channel that is open radially to the outside, by way of its radial inside, as is described in the present application.

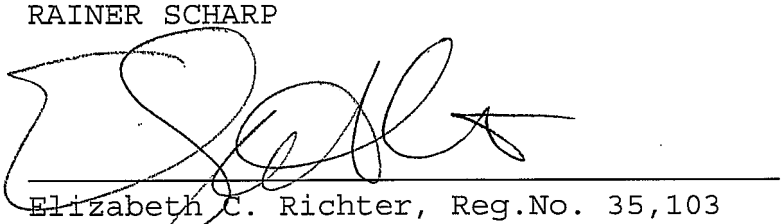
With regard to the Examiner's objection that claim 2 is made obvious by Sugiura and Matsuoka, Sugiura does not describe a piston for an internal combustion engine, but rather one for a swash plate compressor. Furthermore, the recess having a rectangular cross-section is configured in cylinder shape in the Sugiura piston, in the final analysis. It therefore does not run around the radial outside of the piston in the vicinity of the piston crown, and therefore also cannot accommodate a ring element.

Finally, with regard to the piston of Chellappa, this is not a piston whose individual parts are welded together with one another, but its individual parts are screwed and glued to one another. This piston has neither a circumferential recess in the vicinity of the piston crown for accommodating a ring element, nor a cooled ring insert. This piston has nothing to do with the characterizing features of the present object of the invention.

Accordingly, Applicant submits that claims 1-4 are patentable over the cited references, taken either singly or in combination. Early allowance of the amended claims is respectfully requested.

Respectfully submitted,

RAINER SCHARP



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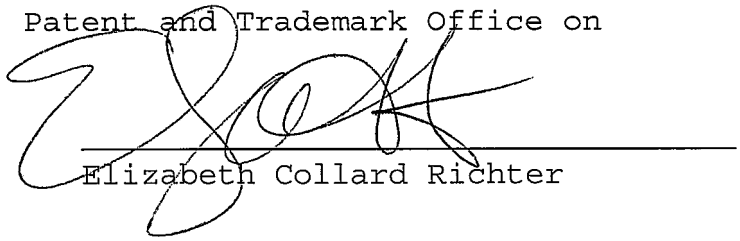

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